The American Time Use Survey (ATUS)

ATUS-X Workshop
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Overview

- About the ATUS
- The ATUS sample
- The ATUS interview
- After collection
  - ▶ Coding Lexicon
  - ▶ Item Nonresponse & Imputation
  - ▶ Other data processing
- Annual release of ATUS data and estimates
- Research using ATUS data

About the ATUS

- Data first collected in January 2003
- New data released annually, mid-summer
- Provides nationally representative estimates of how, where, and with whom Americans spend their time

ATUS basics

- Survey of persons age 15 and over
- A 20-minute computer-assisted interview conducted by telephone
- A Bureau of Labor Statistics survey, conducted by the U.S. Census Bureau

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ATUS Sampling Frame

- People are selected from households that recently completed the monthly labor force survey—the Current Population Survey (CPS)
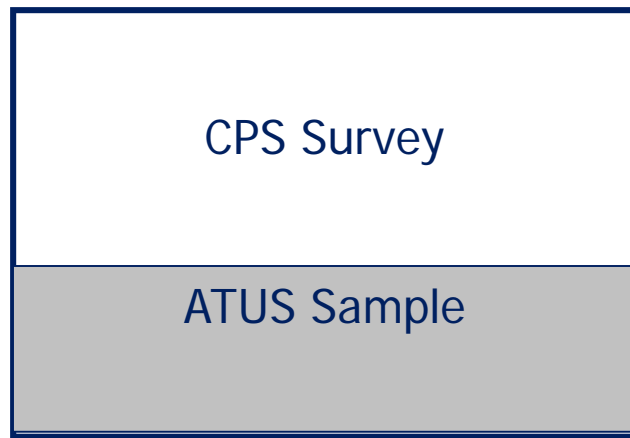
2 to 5 months after the end of the CPS survey, selected individuals are interviewed for the ATUS survey

CPS Survey

ATUS Sample

ATUS Survey
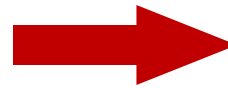
ATUS Sample

- ATUS is a stratified, three-stage random sample
  - ➢ **Stage 1**: Reduce CPS oversample of less populous states.
  - ➢ **Stage 2**: Stratify households based on race/ethnicity of householder, presence and age of children, and number of adults in adults-only households.
  - ➢ **Stage 3**: Randomly select an eligible person from each household selected in stage 2 to be designated person for ATUS. This person is assigned a day about which to be interviewed.

ATUS Sample Allocation

- The ATUS sample is split evenly between weekdays and weekend days
  - ▶ 10 percent of designated persons are asked about a weekday
  - ▶ 25 percent of designated persons in the sample are asked about a Saturday, and 25 percent are asked about a Sunday

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
25%	10%	10%	10%	10%	10%	25%

Advantages of the ATUS Sampling Frame

- A lot of information is already known about households from the CPS
- By stratifying ATUS sample selection based on information from the CPS, a more efficient, cost-effective sample can be chosen
- Money can be saved by updating some information and carrying other information forward from the CPS
- Statistical weights account for nonresponse, based on information from CPS about those who do not respond

ATUS Interview

- Respondents are notified in advance, by mail
  - Introductory letter
  - *Incentive*
  - FAQ sheet

- Respondents are assigned an interview day and contacted on that day for up to 8 weeks to secure <u>one</u> interview

Designated Day (e.g. Monday)   Interview Day (e.g. Tuesday)
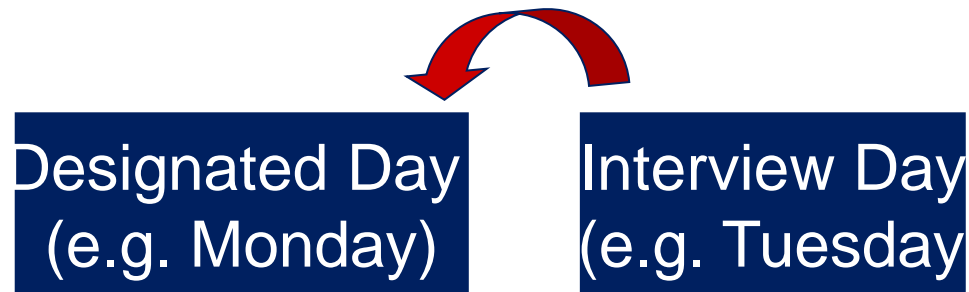
ATUS Interview – Part I

- **Information about household composition:**
  - ▶ Who lives in the household?
  - ▶ Does the respondent have any non-household children?
  - ▶ Age of each person
  - ▶ Sex of each person
  - ▶ Each person's relationship to the respondent

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Example: HH Roster

How is Harry Potter related to you?

○ 20. Spouse (husband/wife)	○ 25. Brother/sister	○ 30. Other nonrelative
○ 21. Unmarried partner	● 26. Other related person (aunt, cousin, nephew, mother-in-law, etc.)	○ 40. Non-household child
○ 22. Child/stepchild	○ 27. Foster child	
○ 23. Grandchild	○ 28. Housemate/roommate	
○ 24. Parent (mother or father)	○ 29. Roomer/boarder	

Demographics

	Stat	First Name	Last Name	Mem	Ure	Sex	Rel	Birth Month	Day	Year	Age
[1]		Petunia	Dursley	1		2	18	6	10	1962	42
[2]		Vernon	Dursley	1		1	20	1	23	1959	45
[3]		Dudley	Dursley	1		1	22	7	20	1993	11
[4]		Harry	Potter	1		1	26				
[5]											
[6]											

ATUS Interview — Part II

- **Labor force info**
  - ▶ Respondent's employment status, usual work hours, earnings, industry, occupation
  - ▶ Spouse's employment status, usual work hours
- **School enrollment status**
  - ▶ College or high school
  - ▶ Full-time or part-time student

ATUS Interview – Part III

- Core part of interview: 24-hour time diary about "yesterday"
  - ▶ The respondent's main activities
    - – Who?
    - – Where?
  - ▶ Secondary childcare: information about times when the respondent also had a child under age 13 in his or her care
  - ▶ Eldercare

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ATUS Interview – Part III

- **Conversational interviewing**
  - ▶ Interviewers administer the 24-hour time diary using a flexible interview style.
  - ▶ Respondents can provide information about their activities in any preferred order.
  - ▶ This encourages respondents to report their activities in a way that feels comfortable and natural, thus facilitating recall.

Example: Diary

So let's begin. Yesterday, Monday, at 4:00 AM, what were you doing?

- Use the slash key (/) for recording separate/simultaneous activities.
- Do not use precodes for secondary activities.

1. Sleeping
2. Grooming (self)
3. Watching TV
4. Working at main job
5. Working at other job
6. Preparing meals or snacks
7. Eating and drinking

8. Cleaning kitchen
9. Laundry
10. Grocery shopping
11. Attending religious service
12. Paying household bills
13. Caring for animals and pets

30. Don't know/Can't remember
31. Refusal/ None of your business

	Start	I/D	Activity	TIME	Hrs	Mins	Stop	Who	Who_2	Where	Where specify
[1]	4:00AM		Sleeping	2	8	0	12:00PM				
[2]	12:00PM		Preparing meals and snacks	1	1	0	1:00PM	0		1	Respondent's home
[3]	1:00PM		playing with kids	1		1	1:01PM	2		1	Respondent's home
[4]	1:01PM		Grooming	1	2	0	3:01PM				

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Example: Who?

Example: Where?

Where were you while you were yelling at harry?

PLACE   MODE OF TRANSPORTATION

- ● 1. Respondent's home or yard
- ○ 2. Respondent's workplace
- ○ 3. Someone else's home
- ○ 4. Restaurant/Bar
- ○ 5. Place of worship
- ○ 6. Grocery store
- ○ 7. Other store/Mall
- ○ 8. School
- ○ 9. Outdoors away from home
- ○ 10. Library
- ○ 11. Other place (specify)

- ○ 12. Car, truck, or motorcycle (driver)
- ○ 13. Car, truck, or motorcycle (passenger)
- ○ 14. Walking
- ○ 15. Bus
- ○ 16. Subway/Train
- ○ 17. Bicycle
- ○ 18. Boat/Ferry
- ○ 19. Taxi/Limousine Service
- ○ 20. Airplane
- ○ 21. Other (specify)

	Start	I/D	Activity	TIME	Hrs	Mins	Stop	Who	Who_2	Where
[1]	4:00AM		Sleeping	2	3	0	7:00AM			
[2]	7:00AM		Grooming / listening to the radio	2	0	30	7:30AM			
[3]	7:30AM		Preparing meals and snacks	1	0	35	8:05AM	3		1
[4]	8:05AM		Yelling at Harry	1		45	8:50AM	3,4		1

Secondary Childcare

- Identify activities in which the respondent also had a child under age 13 in his or her care.
  - ▶ For example: "Cooking dinner while keeping an eye on the children."

Eldercare

- Added in 2011
- Goals:
  - To identify eldercare providers
  - To collect basic info about the care recipient
  - To identify times when the respondent was providing eldercare on the diary day

Eldercare

- "The next set of questions are about times you may have recently spent assisting or caring for an adult who needed help because of a condition related to aging..."

- "Unpaid eldercare in the United States"-Press Release
  - ▶ September 2013
  - ▶ September 2015

ATUS modules

- 5-minutes of questions asked at the end of the ATUS

- ATUS modules:
  - ▶ Eating & Health module, sponsored by the USDA and National Institutes of Health (2006-08, 2014-16)
  - ▶ Well-being module, sponsored by the National Institute on Aging (2010, 2012-13)
  - ▶ Leave module, sponsored by the DOL Women's Bureau (2011, 2017 proposed)

Eating & Health Module

- Questions about secondary eating, participation in SNAP/food stamp programs, height and weight, and income

- Sponsored by the USDA: 2006-2008, 2014-16

- Goals:
  - ▶ To collect information for use in revising food assistance programs
  - ▶ To provide researchers with data to analyze the ties between time use, eating patterns, and obesity

Well-Being Module

- Sponsored by the National Institute on Aging: 2010, 2012, 2013
- Goals:
  - To collect data about how people experience their time
  - To provide researchers with data to create measures of and analyze society's subjective well-being

Leave Module

- Collected in 2011, 2017 proposed
- Sponsored by the DOL Women's Bureau
- Questions about workers' access to leave, use of leave, and flexibility of work schedules
- "Access to and Use of Leave" – August 2012 Press Release

AFTER THE INTERVIEW

Activity Coding Lexicon

- Development goals:
  - International comparability
  - Analytical relevance
  - Coder usability

Activity Coding Lexicon

- Based on Australia's 1997 lexicon
  - ▶ A high level of detail
  - ▶ The categories appeared to describe well the activities done by people in the U.S.
- Allows for international comparability at a broad level

3-levels of activity detail

- **02 Household activities**
  - ▶ 01 Housework
    - – 01 Interior cleaning
    - – 02 Laundry
    - – 03 Sewing, repairing, & maintaining textiles
    - – 04 Storing interior hh items, including food
    - – 99 Housework, n.e.c.
  - ▶ 02 Food & drink prep., presentation, & clean-up
    - – 01 Food & drink preparation
    - – 02 Food presentation
    - – 03 Kitchen & food clean-up

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17 Major activity categories of the ATUS lexicon

- Personal Care
- Household activities
- Caring for and helping household members
- Caring for and helping nonhousehold members
- Work and work-related activities
- Education
- Consumer purchases
- Professional and personal care services
- Household services

17 Major activity categories of the ATUS lexicon

- Government services and civic obligations
- Eating and drinking
- Socializing, relaxing, and leisure
- Sports, exercise, and recreation
- Religious and spiritual activities
- Volunteer activities
- Telephone calls
- Traveling

Assigning Activity Codes

- Interviewers assign activity codes
- This is not done during the interview
- Interviewers code diaries that have been collected by other interviewers
- Two separate coders will code the diary
- If different coding occurs, supervisors will determine the appropriate code

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Childcare – Coding rules manual

- Which of the following activities are childcare?
  - ▶ Watching cartoons with my child (No)
  - ▶ Shopping for school clothes with my son (No)
  - ▶ Playing Monopoly with my wife and son (No)
  - ▶ Talking to my neighbor and her children (No)
  - ▶ Playing Monopoly with my children (Yes)

The coding desk aid for reading: An excerpt
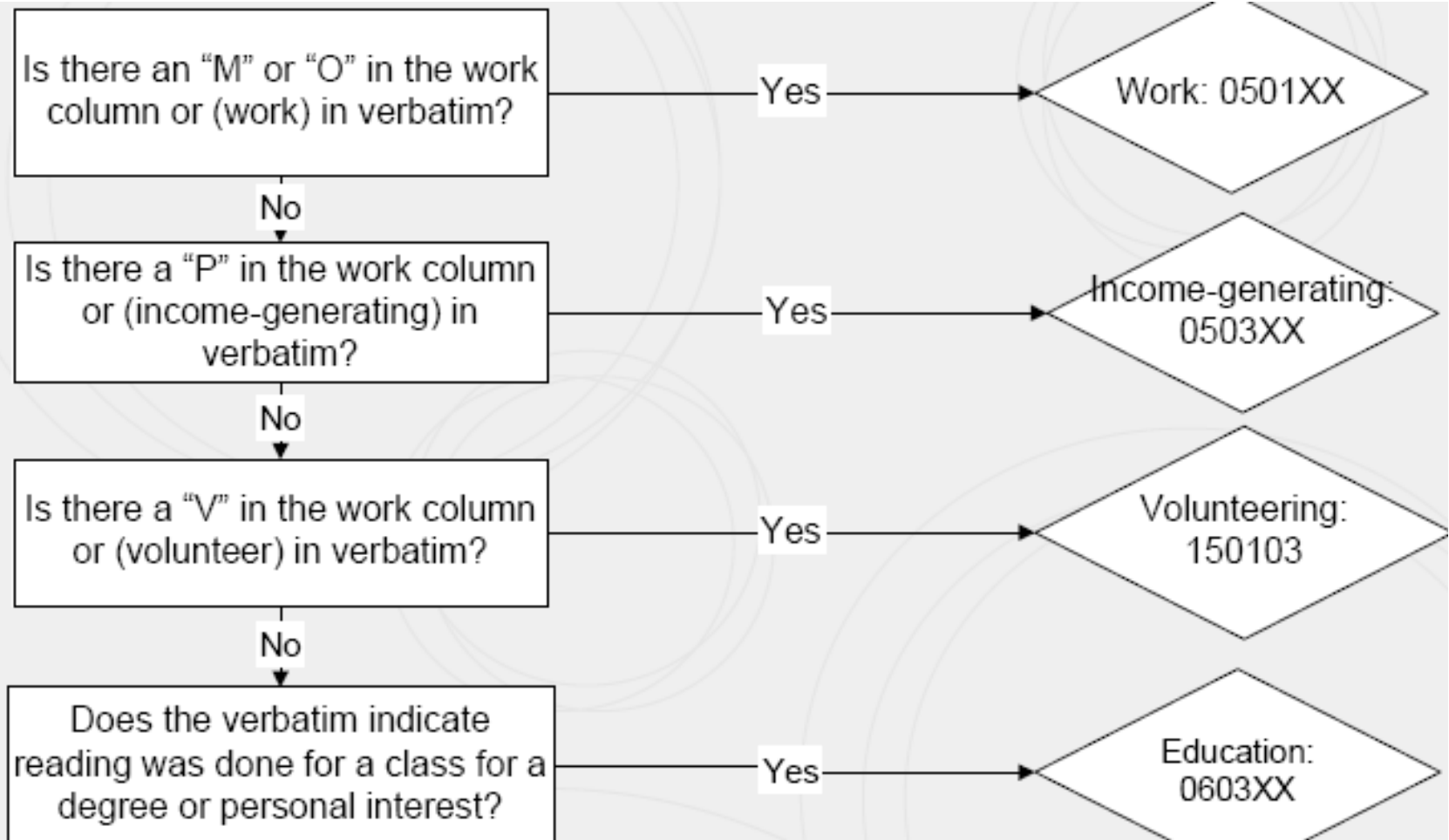
Coding computer use

- Computer use is coded based on how it was being used
  - ▶ "Paying bills online" → Financial management
  - ▶ "Blogging" → Writing for personal interest
  - ▶ "Playing computer games" → Playing games
  - ▶ "Doing research online (work, main job)" → Work, main job

Coding travel episodes

- Travel codes mirror the structure of the lexicon

05 Travel Related to Work

      01   Travel related to working

      02   Travel related to work-related activities

      03   Travel related to income-generating activities

      04   Travel related to job search & interviewing

      99   Travel related to work, n.e.c.*

Coding travel episodes

- Generally, travel codes are assigned based on the activity that follows a travel episode

Verbatim:	Lexicon activity:
1. Drove to work	Travel related to working
2. Worked (main job)	Working, main job
3. Drove to grocery store	Travel related to grocery shopping
4. Grocery shopped	Grocery shopping

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Coding travel episodes

■ When a respondent travels home, the purpose of the travel episode is based on the activity that occurred prior to the travel episode

Verbatim:	Lexicon activity:
1. Drove to grocery store	Travel related to grocery shopping
2. Grocery shopped	Grocery shopping
3. Drove home	Travel related to grocery shopping

Item nonresponse: why it matters

- Item nonresponse is probably not random

- If you ignore missing data and restrict your analysis to records with reported values, you are assuming that all respondents are **equally likely or unlikely to respond** to the item and that the estimate is approximately unbiased

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Rates of imputation

Rates of imputation in ATUS are very low

School variables	1 – 2%
Demographic variables	1 – 2%
Industry and occupation variables	1 – 2%
Secondary childcare variables	1 – 4%
Weekly earnings	6 – 9%
Hourly earnings	8 – 13%

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What doesn't get imputed?

- **Activity codes**
  - ▶ Less than 2% of all activities are uncodable activities or don't know/can't remember
  - ▶ Higher incidence of don't know/can't remember is associated with older respondents

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What doesn't get imputed?

- CPS information about new household members
  - ▶ About 2% of household members are new in ATUS
  - ▶ New household members are associated with younger respondents
- Until 2010, CPS variable: family income
  - ▶ About 13% was missing
  - ▶ Beginning in 2010, family income is imputed (up to 22%)

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ATUS Statistical weights

- Stratified random sample, where certain groups are over-sampled

- Sample is NOT uniformly distributed across days of the week

- Response rates differ across demographic groups and days of the week

- Weights ensure that groups and days of the week are accurately represented

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ATUS Statistical weights

- Weights adjust for differences by:

  - Age
  - Sex
  - Race / Ethnicity
  - Presence of children in household
  - Respondent's educational attainment
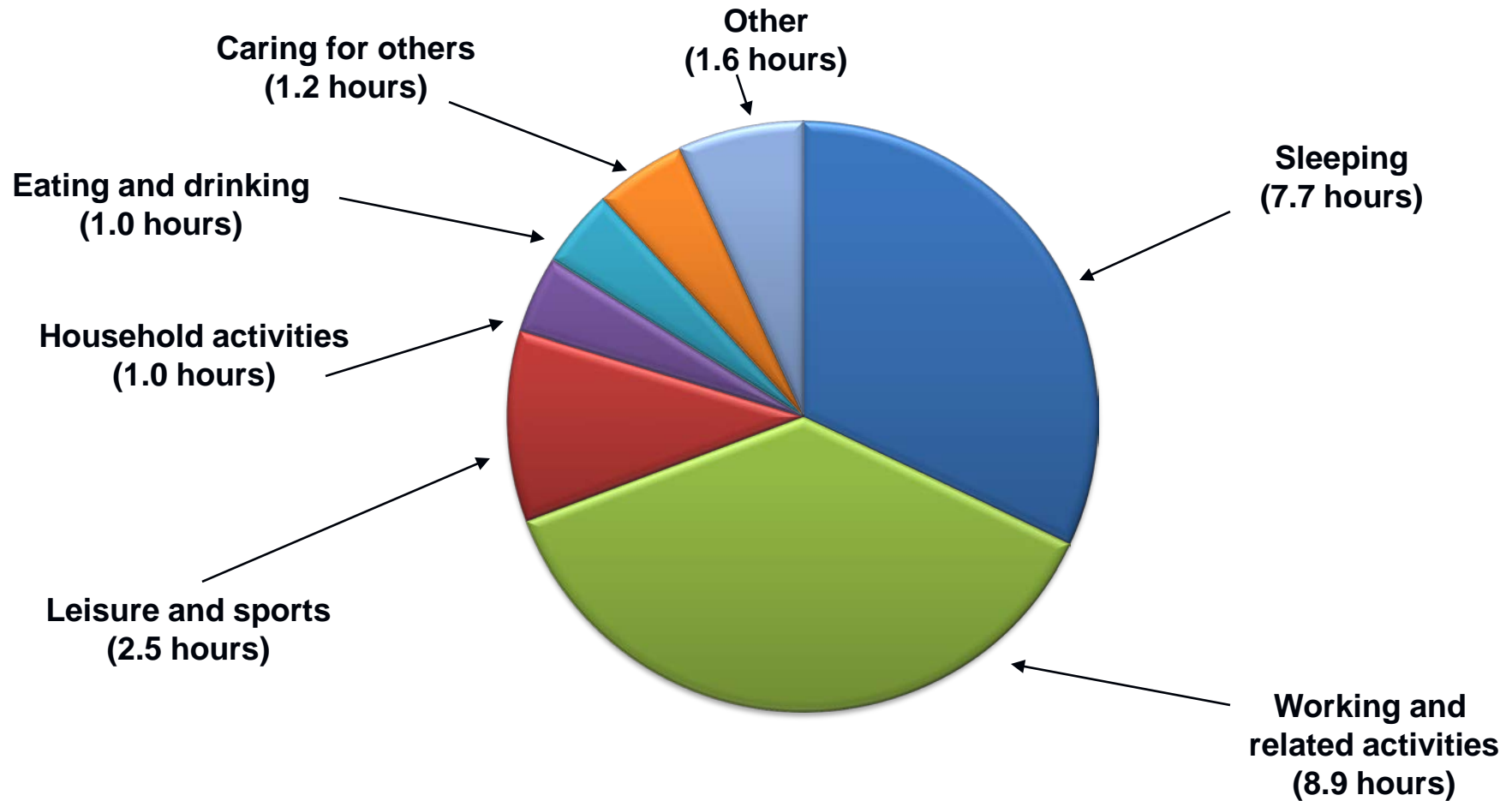 - Day of week

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ATUS Statistical weights

- The sum of weights for each quarter represents the number of person-days in that quarter

- A "person-day" refers to the number of days in the quarter times the size of the population

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Research Using ATUS Data

- Research has highlighted a variety of topics
  - ▶ Time spent on housework and unpaid work
  - ▶ Time use of non-working men
  - ▶ Weather and intertemporal substitution of leisure
  - ▶ Family structure and parents' time spent in childcare
  - ▶ Physical activity during the transition from adolescence to adulthood
  - ▶ Work hours

- See www.bls.gov/tus for a complete list

Time use on an average work day for employed persons ages 25 to 54 with children

Caring for others (1.2 hours)

Other (1.6 hours)

Eating and drinking (1.0 hours)

Sleeping (7.7 hours)

Household activities (1.0 hours)

Leisure and sports (2.5 hours)

Working and related activities (8.9 hours)

NOTE: Data include employed persons on days they worked, ages 25 to 54, who lived in households with children under 18. Data include non-holiday weekdays and are annual averages for 2014. Data include related travel for each activity.

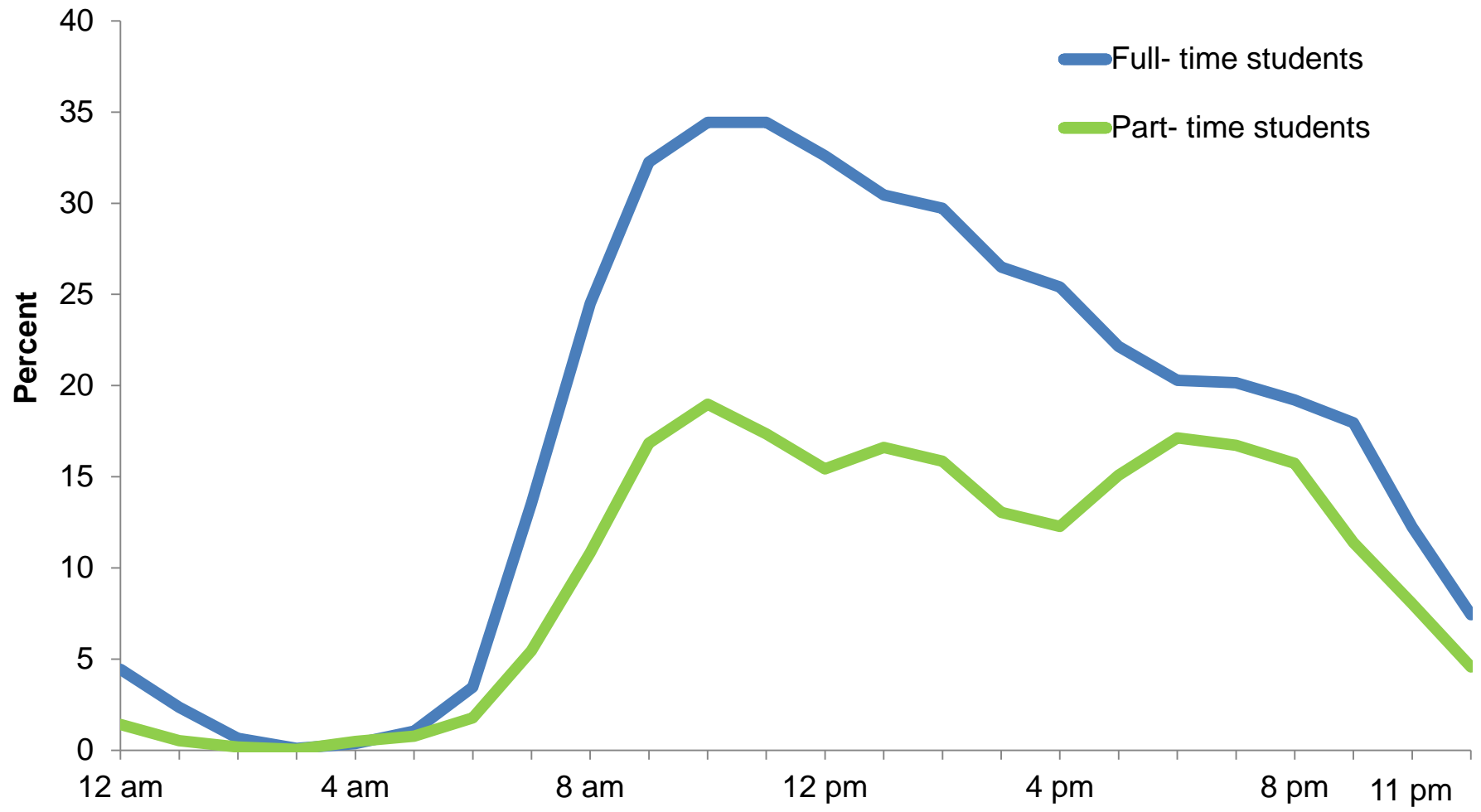SOURCE: Bureau of Labor Statistics, American Time Use Survey

Weekday time use of married women living with young children, by employment status
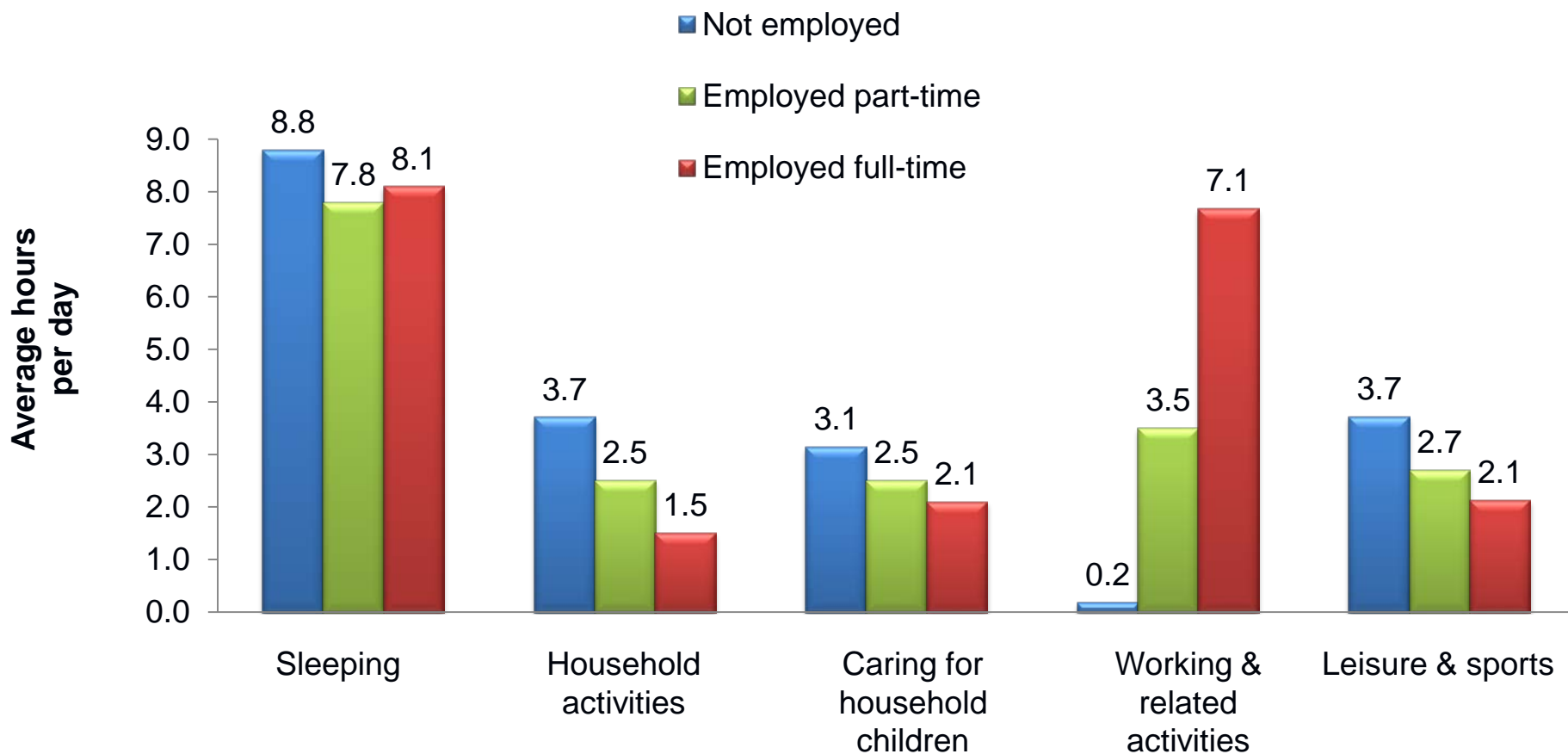
NOTE: Data include all married women, ages 25 to 54, with a child under 6 present in the household. Data include non-holiday weekdays and are annual averages for 2014.
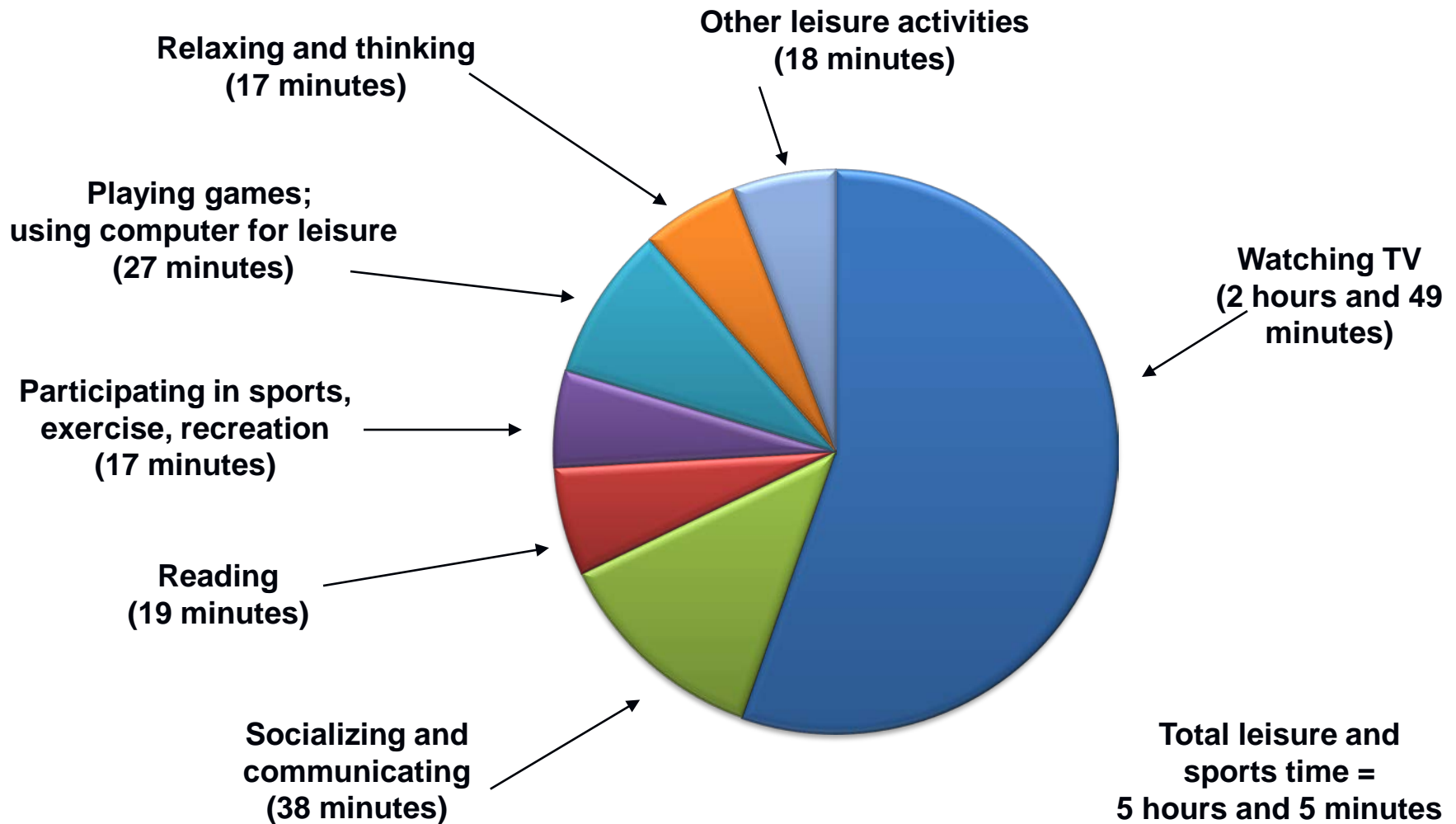
Percent of university and college students who did educational activities, by hour of day on weekdays

NOTE: Data include individuals, ages 15 to 49, who were enrolled at a university or college. Data include non-holiday weekdays and are averages for 2010-14.

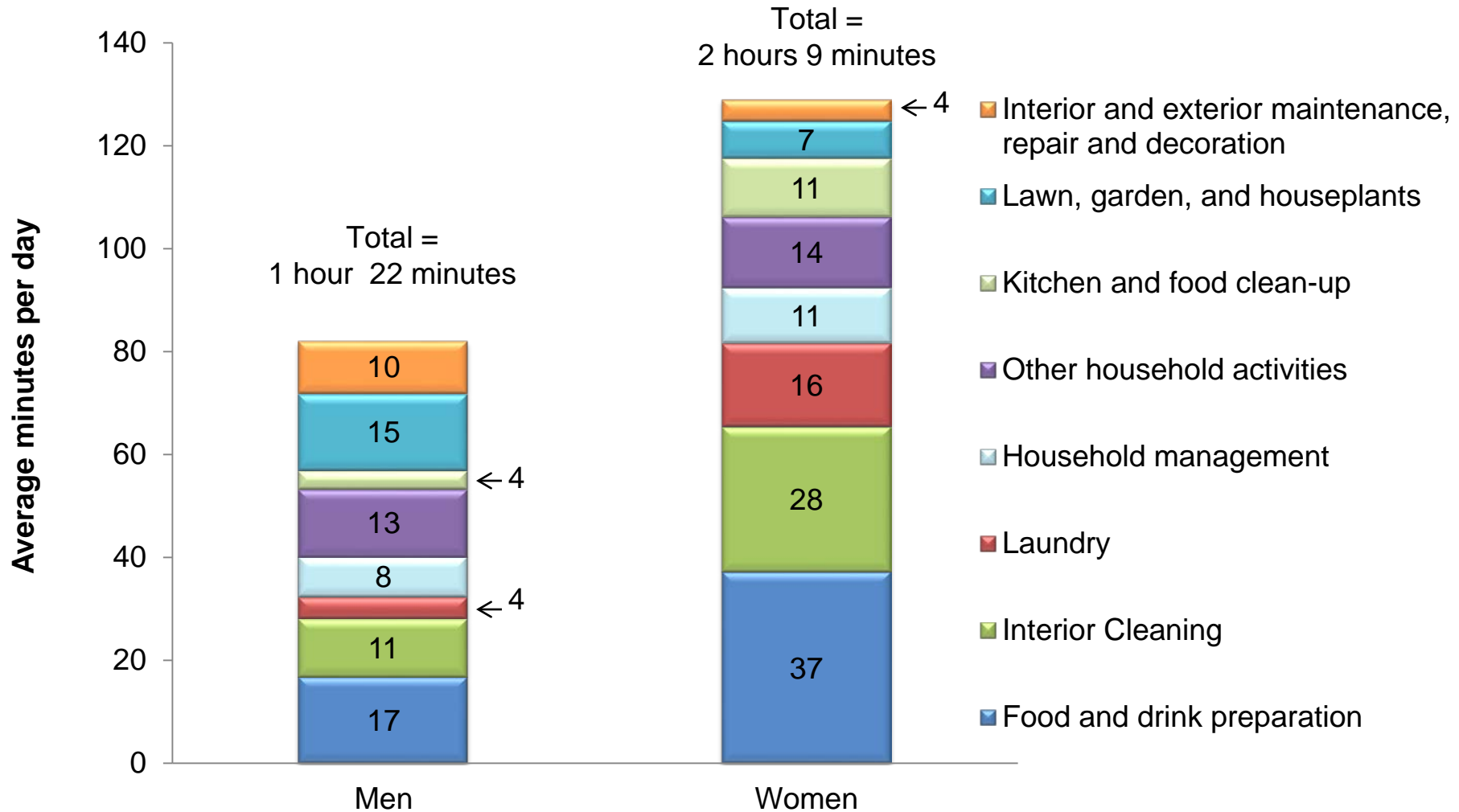SOURCE: Bureau of Labor Statistics, American Time Use Survey

Leisure time on an average day

Relaxing and thinking (17 minutes)

Other leisure activities (18 minutes)

Playing games; using computer for leisure (27 minutes)

Watching TV (2 hours and 49 minutes)

Participating in sports, exercise, recreation (17 minutes)

Reading (19 minutes)

Socializing and communicating (38 minutes)

Total leisure and sports time = 5 hours and 5 minutes

NOTE: Data include all persons age 15 and over. Data include all days of the week and are annual averages for 2014.
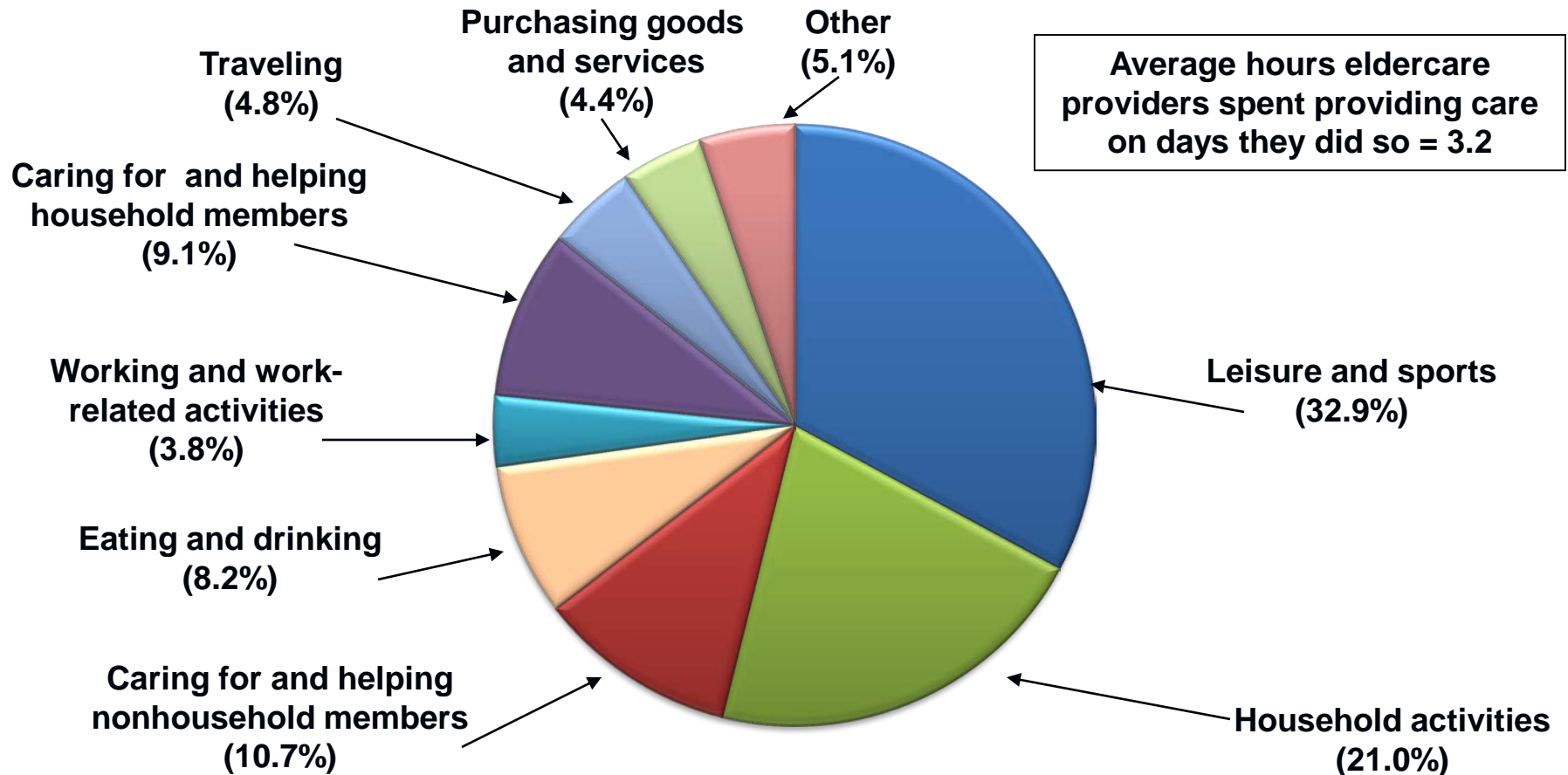
Average minutes per day men and women spent in household activities

NOTE: Data include all noninstitutional persons age 15 and over. Data include all days of the week and are annual averages for 2014. Travel related to these activities is not included in these estimates.

Percent distribution of time spent providing eldercare

Traveling
(4.8%)

Purchasing goods
and services
(4.4%)

Other
(5.1%)

Caring for and helping
household members
(9.1%)

Working and work-
related activities
(3.8%)

Eating and drinking
(8.2%)

Caring for and helping
nonhousehold members
(10.7%)

Leisure and sports
(32.9%)

Household activities
(21.0%)

Average hours eldercare
providers spent providing care
on days they did so = 3.2

NOTE: Data include all eldercare providers. Eldercare can involve a range of care activities, such as assisting with grooming, preparing meals, providing companionship and transportation. Estimates are averages across all days of the week in 2013-14.

Contact Information

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